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(56) Documents Cited:

GB 0460938 A US 6159574 A
 WPI Abstract, Acc. No. 1999-425777 & JP 11172851

(58) Field of Search:

UK CL (Edition V) A4L B5L B5N
 INT CL⁷ A47C B32B
 Other: Online: EPODOC, WPI, JAPIO, RM25

(54) Abstract Title: Flexible composite material

(57) A composite structure comprises alternating layers of a flexible material 2 and a more rigid material 1 enclosed within casing 3. Layers 1 and 2 are not bonded together and may slide over each other within the casing as the material is flexed. Casing 3 may be covered in upholstery 4. Material 1 may comprise a birch faced plywood and material 2 a flexible plywood. Casing 3 may comprise a foamed plastic material. The composite structure is intended for use in body conformable furniture.

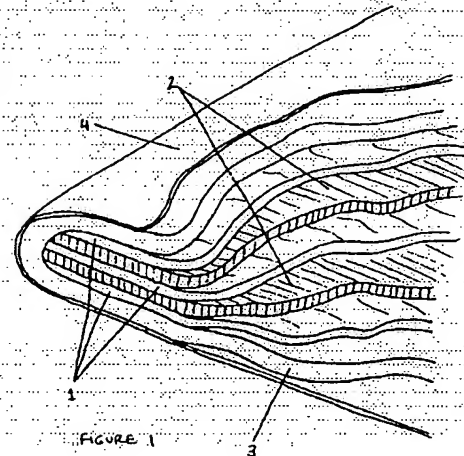


FIGURE 1

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PAGE 2 THE DRAWINGS: COMPOSITE MATERIAL

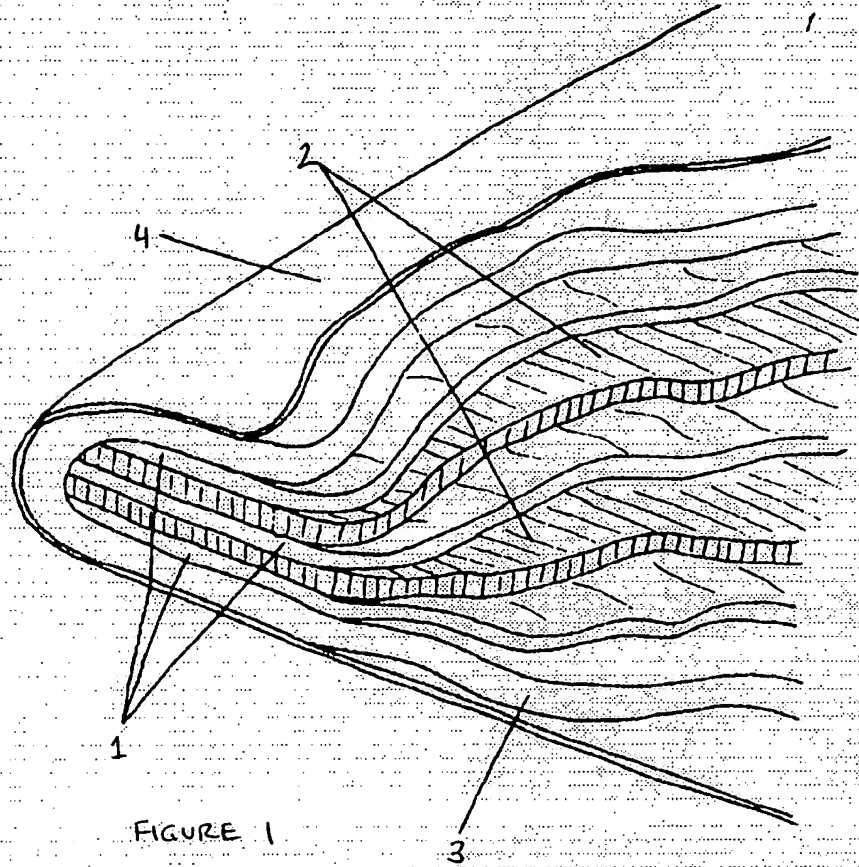


FIGURE 1

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PAGE 3 THE DRAWINGS: COMPOSITE MATERIAL

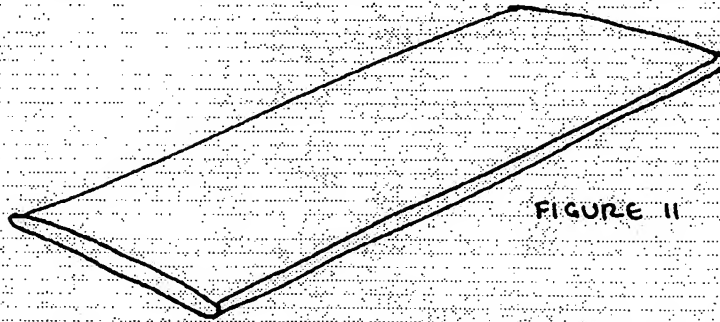


FIGURE II



FIGURE III

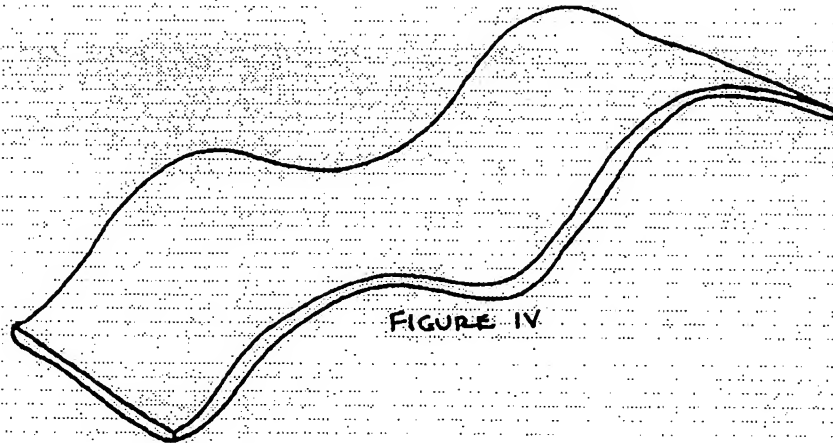


FIGURE IV

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1 THE DESCRIPTION: COMPOSITE MATERIAL

Background

The invention solves the **problem** of making furniture for individual people of differing sizes and weights. Most items are made for an average sized person, and are not suitable for people who are either smaller or larger.

The composite material **solves** this problem by adapting to the individual using it.

What it **does** is bend and flex to mould itself to the user, while also supporting them.

Essential features

The composite uses a combination of different materials, each with a specific purpose:

- three layers of 4mm birch faced plywood – for strength
- two layers of 5mm Flexiply – for flexibility
- a casing of 10mm EV50 Evazote foam – for comfort and to keep the layers of plywood together.

The five layers of plywood and fare not glued to each other but are held together inside the foam sleeve, which is glued with contact adhesive only to the face of the two outermost layers of ply, so that they slide freely over one another as the material is flexed. Each layer supports the layers adjacent to it and the flexibility of the Flexiply and the strength of the plywood complement one another. The foam is upholstered in fabric.

Important features

The fabric sleeve protects the foam from surface damage, and also allows the user to dictate the appearance of the product i.e. colour, texture. It could also be used outdoors if a waterproof sleeve were used.

Preferably the composite would be anchored in a freestanding frame, which could be made of metal, wood or plastic. The composite could also be wall- or floor-mounted.

Detailed description (drawings)

Figure I shows three layers of 4mm birch-faced ply (1) sandwiched alternately between two layers of 5mm Flexiply (2), encased in a foam sleeve (3) and upholstered in fabric (4).

Figure II shows the composite material laid out flat. Figure III shows the composite material flexed in one direction. Figure IV shows the composite material flexed in the opposite direction.

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THE CLAIMS: COMPOSITE MATERIAL

1. A composite material for human body support that is flexible and strong and moulds to the body of the user, made from five layers of two materials that are not glued together but are held together in a flexible sleeve so the layers can slide over one another
2. An item of furniture with a flexible section that moulds to the user as claimed in Claim 1 and uses this combination of materials as claimed in Claim 1
3. An item built into a home with a flexible section that moulds to the user as claimed in Claim 1 and uses this combination of materials as claimed in Claim 1
4. Any combination of layers of plywood, of any thickness, and Flexply, of any thickness, as claimed in any preceding claim
5. Any combination of layers of plywood and/or Flexply held together without gluing the layers to one another as claimed in any preceding claim
6. Any use of plywood or Flexply in this way as claimed in any preceding claim
7. Any use of a sleeve of any material to encase plywood, Flexply or a combination of plywood and Flexply as claimed in any preceding claim
8. Any non-furniture object or product incorporating the composite as claimed in any preceding claim
9. Any use of the composite as claimed in any preceding claim in vehicles
10. Anything using the composite as claimed in any preceding claim in any size or shape
11. Any combination of flexible and inflexible materials held together as claimed in any preceding claim



INVESTOR IN PEOPLE

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 Claims searched: 1-11

Examiner: Richard Gregson
 Date of search: 28 January 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	n/a	GB 460938 A (GAAL & LORENZ) - see diagrams and abstract in particular.
A	n/a	US 6159574 A (ALLAWAY & LANDVIK) - see diagrams and abstract in particular.
A	n/a	WPI Abstract, Acc. No.1999-425777 & JP 11172851 A (SAITOU) - see diagrams and English language abstracts.

Categories:

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category	P Document published on or after the declared priority date but before the filing date of this invention.
& Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^V:

A4L : B5L : B5N

Worldwide search of patent documents classified in the following areas of the IPC⁷:

A47C : B32B

The following online and other databases have been used in the preparation of this search report:

EPODOC, WPI, JAPIO, RM25